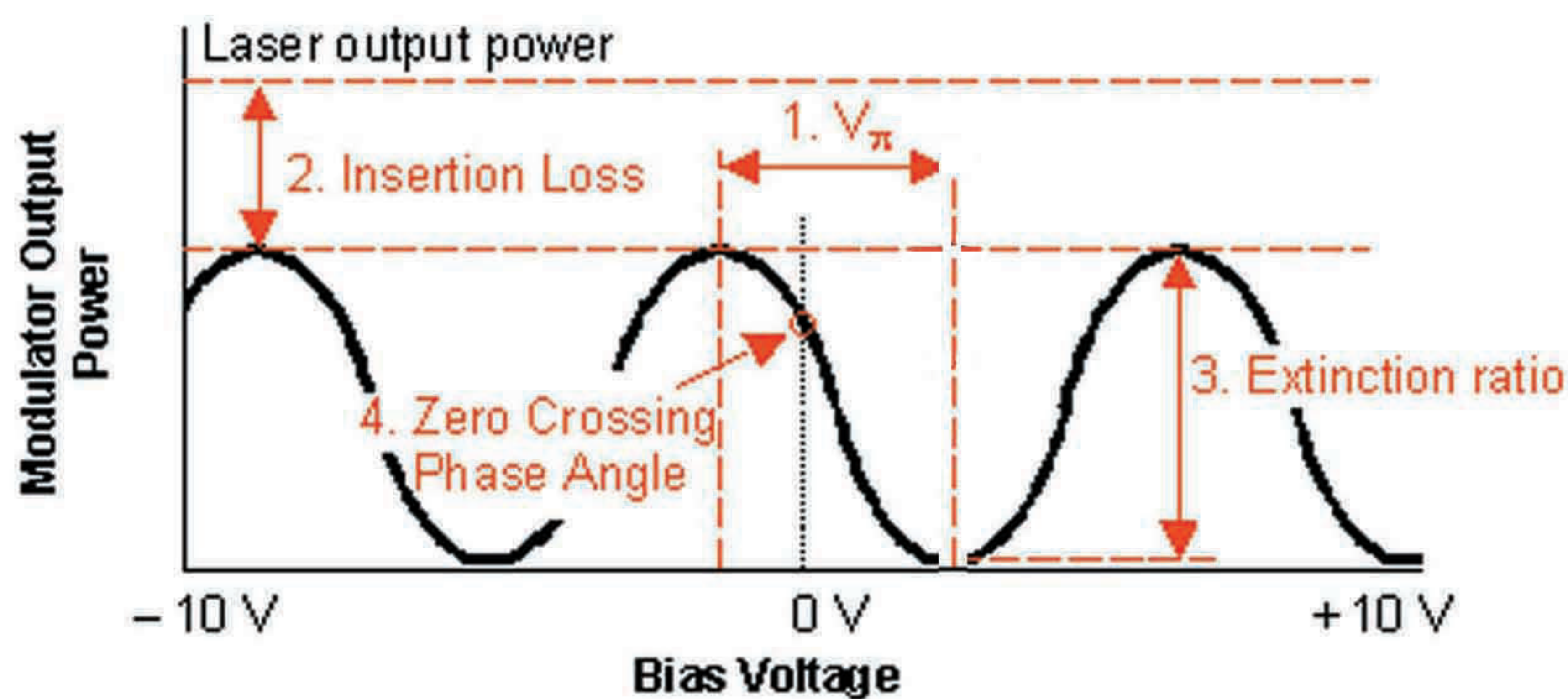
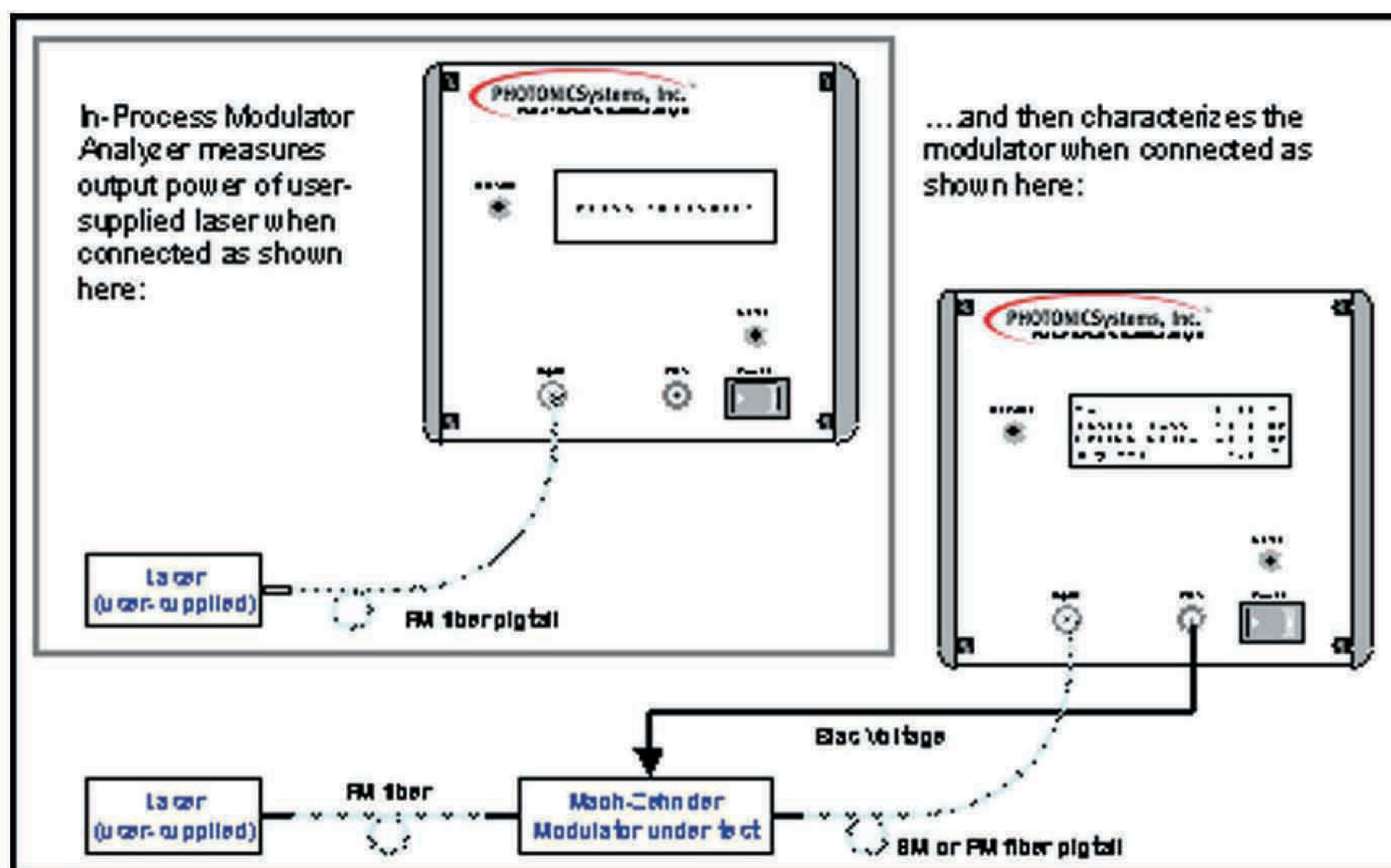


PSI 0301 In-Process Modulator Analyzer

The Photonic Systems, Inc. (PSI) Model 0301 In-Process Modulator Analyzer has been designed to quickly and accurately measure four key performance parameters of a Mach-Zehnder modulator: 1. V_{π} , 2. Insertion Loss, 3. Extinction Ratio, and 4. Zero Crossing Phase Angle. The following plot of a Mach-Zehnder modulator's transfer function points out how these parameters are defined.



Set-up is quick and easy. Connect a laser's fiber pigtail to the In-Process Modulator Analyzer's optical input port and press the "Measure" button. Insert the modulator you wish to characterize and press "Measure" again. An easy-to-read display lists measured modulator performance characteristics.



PSI works with each customer to tailor the features of our Model 0301 In-Process Modulator Analyzer. Please contact us, so that we can determine the best version of the Analyzer for your application.



Standard Features

The PSI 0301 measures all four of the following key modulator performance parameters:

V_{π}
the difference between the bias voltage at one of the maximum points on the transfer function curve and the bias voltage at either of the nearest two minimum points

Insertion Loss
the ratio of the laser output power to the maximum modulator output power

Extinction Ratio
the ratio of the maximum to the minimum modulator output power

Zero Crossing Phase Angle
the phase difference between the optical field vectors in the two Mach-Zehnder interferometer arms where they interfere (at the output of the modulator) at $V_{bias} = 0$ Volts

Ordering Information

Photonic Systems, Inc.
900 Middlesex Tpk., Bldg. 5
Billerica, MA 02181
tel: (978) 670-4990
fax: (978) 670-2510
e-mail:
in-line.analyzer@photonicsinc.com
online:
www.photonicsinc.com

**STANDARD SPECIFICATIONS
MODEL 0301 IN-PROCESS MODULATOR ANALYZER**

| PARAMETER | VALUE | UNITS |
|--|--------------------------------------|--------------|
| Wavelength range | 1300 to 1550 | nm |
| Input optical power range | 1 to 10 | mW |
| Modulator parameter ranges* | | |
| V_{π} | 1 to 10 | V |
| Insertion Loss | 3 to 10 | dB |
| Extinction Ratio | 10 to 30 | dB |
| Zero Crossing Phase Angle | -180 to +180 | degrees |
| Maximum measurement error* | | |
| V_{π} | 0.1 | V |
| Insertion Loss | 0.5 | dB |
| Extinction Ratio | 0.5 | dB |
| Zero Crossing Phase Angle | 2.0 | degrees |
| Bias Port | | |
| Output voltage range | -10 to +10 | V |
| Modulator impedance | 1 k Ω minimum; 350 pF maximum | |
| Time to complete measurement (typical) | 45 | sec. |
| Power supply | 110 – 130 @ 10 W maximum | Line Voltage |
| Case dimensions | | |
| Width | 5.75 | in. |
| Height | 5.25 | in. |
| Depth | 8.75 | in. |
| Weight | | |
| Case | 3.5 | lb. |
| AC Adaptor | 0.5 | lb. |
| Storage Temperature | -25 to 60 | degrees C |

* Maximum errors listed for Extinction Ratio and Zero Crossing Phase Angle measurements correspond to the extreme ends of the acceptable modulator parameter ranges.

Options

PSI works with each customer to tailor the features and performance of our Model 0301 to suit the customer's applications.

The following are examples of some custom options we have provided:

Custom Optical Wavelength
630 nm, 1060 nm

High Bias Voltage
range = -26 to +26 V

Custom Optical
Connector Styles
FC and SC, PC and APC

Custom Optical Fiber
polarization maintaining (PM)

Real-time
Polarization Monitoring

continuous update of extinction
ratio permits alignment of
the input polarization
maintaining (PM)
fiber to the polarization
of the modulator waveguide